

# ADDITIONS TO THE FROG FAUNA OF THE NORTHERN TERRITORY

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## Summary

TYLER, M. J., WATSON, G. F. & DAVIES, M. (1983) Additions to the frog fauna of the Northern Territory. *Trans. R. Soc. S. Aust.* 107(4), 243-245, 30th November, 1983.

*Cyclorana vagitus*, *Limnodynastes tasmaniensis* and *Uperoleia borealis* are reported from the N.T. for the first time. All occur in the northwest of the territory. The structure of the mating call of *C. vagitus* is described and figured.

KEY WORDS: new records, frogs, Northern Territory, call, audiospectrogram, distribution.

## Introduction

Within the last decade the known frog fauna of the Northern Territory has increased substantially. Tyler (1976) listed only 25 species whereas six years later the total had risen to 36 (Tyler 1982). Whilst the latter work was in press *Ranidella deserticola* Liem & Ingram was reported from the N.T., and a further species (*Uperoleia trachyderma* Tyler, Davies & Martin) was described from near Newcastle Waters (Tyler *et al.* 1981a). In addition, Tyler, Davies & Martin (1983) reported the presence, on the Barkly Tableland, N.T., of *Neobatrachus aquilonius* Tyler, Davies & Martin, formerly known only from W.A.

In February 1982 we travelled by road from Darwin to Halls Creek, W.A., via Katherine and Kununurra, and returned by the same route. Three of the species collected on the Victoria Highway between Katherine and Kununurra represented additions to the fauna of the N.T. Here we report these collections and provide additional biological data on them.

## Material and Methods

The specimens reported here are lodged in the collections of the South Australian Museum (SAM) and Department of Zoology, University of Adelaide (UAZ).

Methods of measurement follow Tyler (1968). Osteological data were obtained from cleared and Alizarin Red and Alcian blue stained preparations using the technique of Dingerkus and Uhler (1977).

Male mating calls were recorded with a Sony tape recorder (TC-510-2) and a Beyer M88 dynamic microphone, at a tape speed of 19 cm/sec. Wet-bulb air temperatures, mea-

sured close to the calling site of males, and water temperatures were obtained with a Schultheis quick-reading thermometer.

Calls were analysed using a stereo tape recorder (Revox B 7711), a sound spectrograph (Kay Model 6061-B Sona-Graph), a digital processing oscilloscope (Norland 3001/DMX) and a direct recording oscilloscope (Visilight).

## Family: HYLIDAE

*Cyclorana vagitus* Tyler, Davies & Martin, 1981

*Material*: SAM R23858-61 Newry Stn, N.T., 28 km E of W.A. border, 8.ii.1982.

We located a male and amplexant pair in a shallow pool less than 2 m in diameter surrounded by tall grasses, adjacent to the road. The female had a snout-vent length of 44.4 mm and the two males 43.1 and 45.5 mm respectively. These measurements are within the ranges of the type series (Tyler *et al.*, 1981b).

Before the amplexant pair was formed both males were calling from sites at the edge of the water. Analysis of the mating call is based on

TABLE 1. Intensity of sound at each frequency band within the call of *Cyclorana vagitus* relative to the intensity at the apparent carrier frequency (c. 2500 Hz) based on the formula  $I_s = 20 \log \frac{V_s}{V_{ref}}$  where  $V_s$  — peak voltage generated by each frequency band determined from Fourier analysis using a digital processing oscilloscope.

SAM R23860		SAM R23861	
Frequency (Hz)	Relative Intensity (dB)	Frequency (Hz)	Relative Intensity (dB)
820	-1	850	-3
1221	-20	1279	-23
1631	10	1709	-25
2041	+6	2129	-11
2451	0	2549	0
2861	-6	2988	-12
3262	-24	—	—

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detailed examination of one call of each individual; wet-bulb air temperature at the calling sites was 26.0°C. Values for call characteristics of the two males are: duration, 260 and 310 msec; pulse repetition rate, 408–412 and 419–422 pulses/sec; number of pulses, approximately 107 and 130. In both individuals there is a number of frequency bands varying in relative intensity (Table 1). Determination of the apparent carrier frequency, based on oscillographic analysis, shows a shift in frequency during the call of the first male from 2041 to 2564 Hz and in the call of the second male from 2688 Hz to 2564 Hz.

On the basis of these analyses, the complex call of *C. vagitus* (Fig. 1) is best described as a short, regularly-repeated note (call repetition rate 1.15 calls/sec) having a carrier frequency of approximately 2500 Hz, with a number of side bands generated by the modulating frequency of 410–420 Hz (the pulse repetition rate of the call). Presumably, because of the resonating characteristics of the sound-producing structures of the emitter, some of the side bands (particularly those at 820–850 Hz and 2041–2129 Hz; Table 1), together with the carrier frequency, are emphasised.

Family: LEPTODACTYLIDAE

*Linnodynastes tasmaniensis* Gunther, 1858

Material: SAM R23862–64, UAZ B624, Newry Stn, 33 km E of W.A. border, 8.ii.1982.

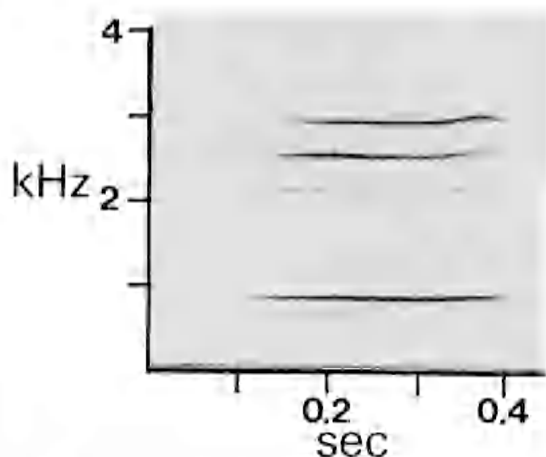


Fig. 1. Audiospectrogram (45 Hz bandpass) of the call of *Cyclorana vagitus* (SAM R23861 Table 1), Newry Stn, N.T., 28 km E of W.A. border. Wet-bulb air temperature at the calling site, 26.0°C.

Small numbers were heard calling from flooded grassland adjacent to the Victoria Highway at sites 24.5–33 km E of W.A. border. We collected specimens only at the eastern end of this transect where a group occupied a flooded depression surrounded by trees. The frogs were breeding and approximately ten freshly-laid foam nests were observed there.

Four calling males were collected. Their snout-vent lengths range 39.2–44.1 mm. All exhibit a bilateral abnormality of the first finger, consisting of a lateral displacement of the terminal portion of the digit.

Martin & Tyler (1978) reported the discovery of an isolated population of this southeastern Australian species on the northern boundary of the Kununurra township in W.A. They proposed that the species had been introduced accidentally from South Australia beneath transportable homes manufactured at the Adelaide suburb of Pooraka. We cannot propose a similar origin for this N.T. population, because there are no transportable homes at or near the site, and there is no direct contact between Newry Station and South Australia.

The call has been described by Martin & Tyler (1978) as "a short, staccato rattle consisting of 5–7 notes". Values of call components for the single individual recorded at Newry Station generally fall within the range of variation reported by Martin & Tyler (1978). The call consisted of 7 notes with a call duration of 22 msec, a note duration of 10 msec (values for Kununurra individuals ranged from 12–16 msec) and dominant frequency of 1950 Hz; water temperature at the calling site was 26.7°C.

*Uperoleia borealis* Tyler, Davies & Martin, 1981

Material: SAM R23834, 5.8 km E. of Victoria River, 2.ii.1982; SAM R23835, 12.9 km E. of Victoria River, 2.ii.1982.

This species previously was known from the northeastern portion of the Kimberley, ranging from Wyndham to Lake Argyle (Tyler *et al.* 1981c). We found specimens only at the above localities which are in the N.T. about 250 km due east of Kununurra, W.A. In addition we heard the species calling at sites 11.2 and 14.7 km E of Victoria River.

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# ON THE STATUS OF SOME NEMATODE SPECIES FROM AUSTRALIAN BIRDS

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## **Summary**

Identification of nematodes from Australian birds, now in progress, has shown that the following nomenclatural changes and comments are necessary.